WE CLAIM:

1.   A data storage system comprising:

a plurality of storage nodes, each node existing at a physical location and having one or more associated

5   contexts

interface mechanisms coupled to each storage node for communicating storage access requests with the storage node; and

data storage management processes that select one or

10   more of the storage nodes to serve a data storage request based at least in part upon the particular contexts associated with each of the storage nodes.

2.   The system of claim 1 wherein the data storage management   processes   comprise   computer-implemented processes executing in at least one of the storage nodes.

3.   The system of claim 1 wherein the data storage management   processes   comprise   computer-implemented processes executing in all of the storage nodes.

4.   The system of claim 1 wherein the data storage requests are associated with a set of desired criteria.

5.   The system of claim 1 wherein the data storage requests are associated with a set of desired criteria and   the   data   storage   management   processes   comprise processes   for   matching   the   desired   criteria   to   the

5   contexts of the storage nodes.

6.   The data storage system of claim 1 wherein the data   storage   management   processes   present   a   unitary logical   volume   of   data   storage   to   external   devices generating   the   storage   access   requests   to   the   selected

5   one or more storage nodes.

-25-

7.   The data storage system of claim 6 wherein the selected one or more storage nodes are selected such that the contexts associated with the unitary logical volume satisfies the desired criteria associated with the one or more storage nodes.

8.   The data storage system of claim 1 wherein the context comprises a political context.

9.   The data storage system of claim 1 wherein the context comprises an economic context.

10.   The data storage system of claim 1 wherein the context comprises a geographic context.

11.   The data storage system of claim 1 wherein the context comprises a network topological context.

12.   The data storage system of claim 1 further comprising encryption mechanisms coupled to the interface mechanisms for encrypting storage access requests during communication between nodes.

13.   The data storage system of claim 1 further comprising authentication mechanisms coupled to the interface mechanisms for authenticating storage nodes before communicating storage requests.

14.   A method of managing distributed data storage comprising the acts of:
    providing a plurality of distributed storage nodes;
    receiving a data storage task in one of the storage nodes;
    determining desired criteria associated with the received unit of data;

-26-

selecting one or more of the plurality of storage nodes having an associated context satisfying the desired criteria; and

executing the storage task in the one or more selected storage nodes.

15. The method of claim 14 wherein the selected storage nodes comprise at least two storage nodes where neither of the at least two storage nodes individually satisfy the desired performance characteristics, but collectively the at least two storage nodes satisfy the desired performance characteristics.

16. The method of claim 14 wherein the selected storage nodes comprise at least two storage nodes and the at least two storage nodes are located in different geographical locations.

17. The method of claim 14 wherein the selected storage nodes comprise at least two storage nodes and the at least two storage nodes are located in different areas of a single data center.

18. The method of claim 14 wherein the selected storage nodes comprise at least two storage nodes and the at least two storage nodes are connected via different network backbones in a single data center.

19. The method of claim 14 wherein the selected storage nodes comprise at least two storage nodes and the at least two storage nodes are located in different data centers.

20. The method of claim 14 wherein the selected storage nodes comprise at least two storage nodes and the at least two storage nodes are located in different cities.

-27-

21. The method of claim 14 wherein the selected storage nodes comprise at least two storage nodes and the at least two storage nodes are located in different political jurisdictions.

22. The method of claim 14 wherein the selection is based upon socio-economic attributes of the physical location of the data storage node.

23. The method of claim 14 wherein the selecting step further comprises matching the desired performance criteria to a context associated with the one or more storage nodes.

24. The method of claim 14 wherein the act of storing comprises storing the data according to a distributed parity scheme analogous to parity distribution found in RAID subsystems.

25. The method of claim 24 wherein the parity paradigm comprises an N-dimensional parity mechanisms where "N" is greater than three.

26. The method of claim 14 wherein the act of storing comprises storing the data in a manner such that the data stored in any one storage node cannot be used in any meaningful fashion without the availability of some or all of the data stored in other storage nodes.

27. A data storage service comprising:
    receiving data storage access requests from a file system;
    maintaining a state information data structure including state information describing the contexts of a number of network-accessible storage devices; and

-28-

using the state information to allocate capacity within the network-accessible storage devices to handle the received data storage request.

28. The data storage service of claim 27 wherein the act of maintaining the state information data structure comprises:

detecting a change in state information associated

5 with at least one of the network-accessible storage devices; and

updating the state information associated with the at least one network-accessible storage device to include the change in state information.

29. The data storage service of claim 27 further comprising:

dynamically re-allocating capacity within the network-accessible storage devices in response to

5 detecting a change in their associated contexts.

30 The data storage service of claim 29 wherein the dynamic re-allocating is done in the absence of an externally generated data storage access request.

31. A method of transporting data from a source to a destination comprising:

determining a context in which each network device that must handle the data transport exists; and

5 selecting a set of network devices such that the data is compliant with the context of each device that handles the data transport.

-29-